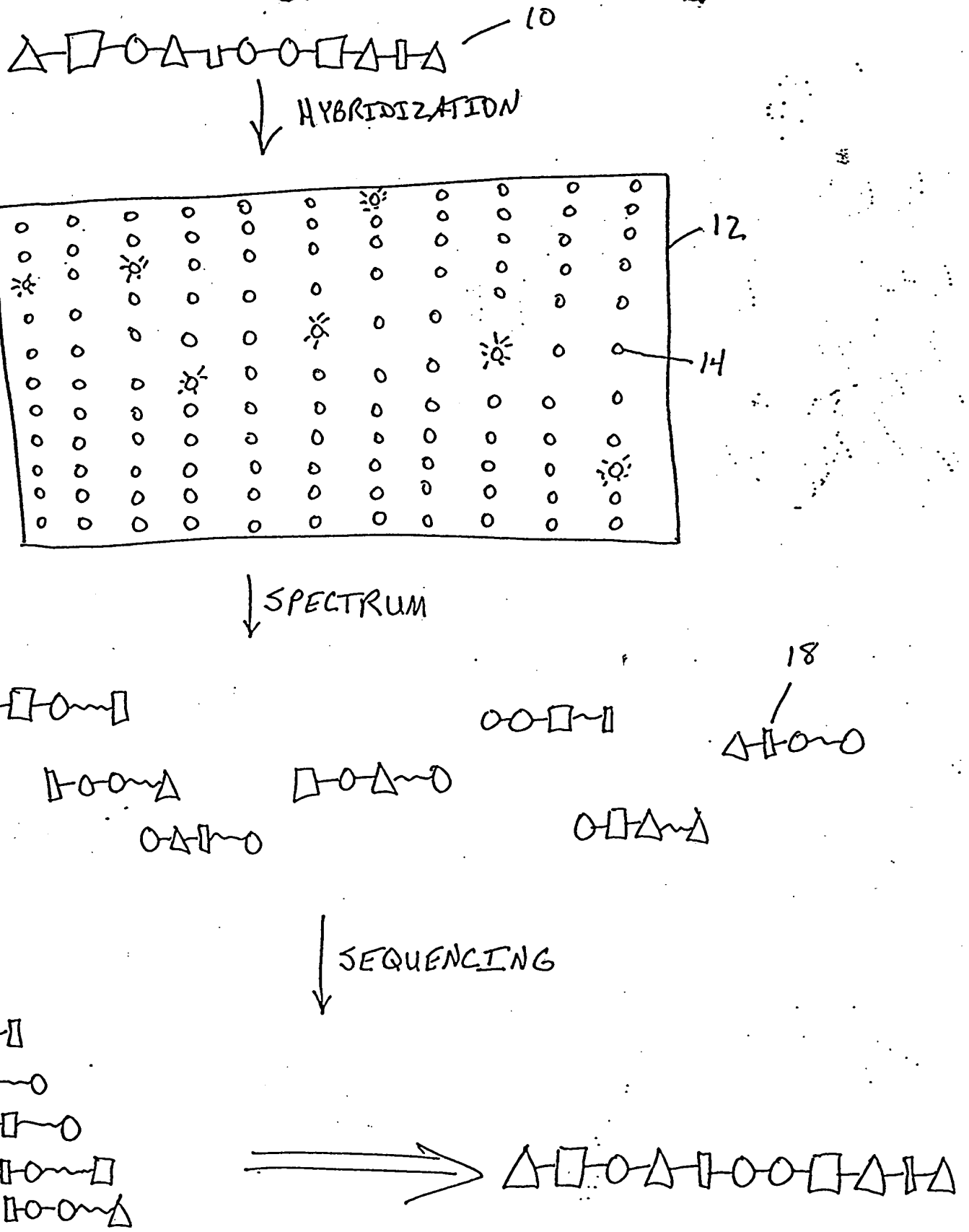

Fig. 1

Figure 2

Sequence: ACTTACGTTAGCTTATG

(3,1)-Probe Spectrum:

ACT-CACG-A AGC-A
GCT-TGTT-C
CGT-G CTT-G
TAC-TTAG-T TTA-T

(2,2)-Probe Spectrum:

AC-T-A	AC-T-C	AG-T-A	
CG-T-G	CT-A-G		
GC-T-T	GT-A-C		
TA-C-T	TA-G-T	TT-C-T	TT-G-T

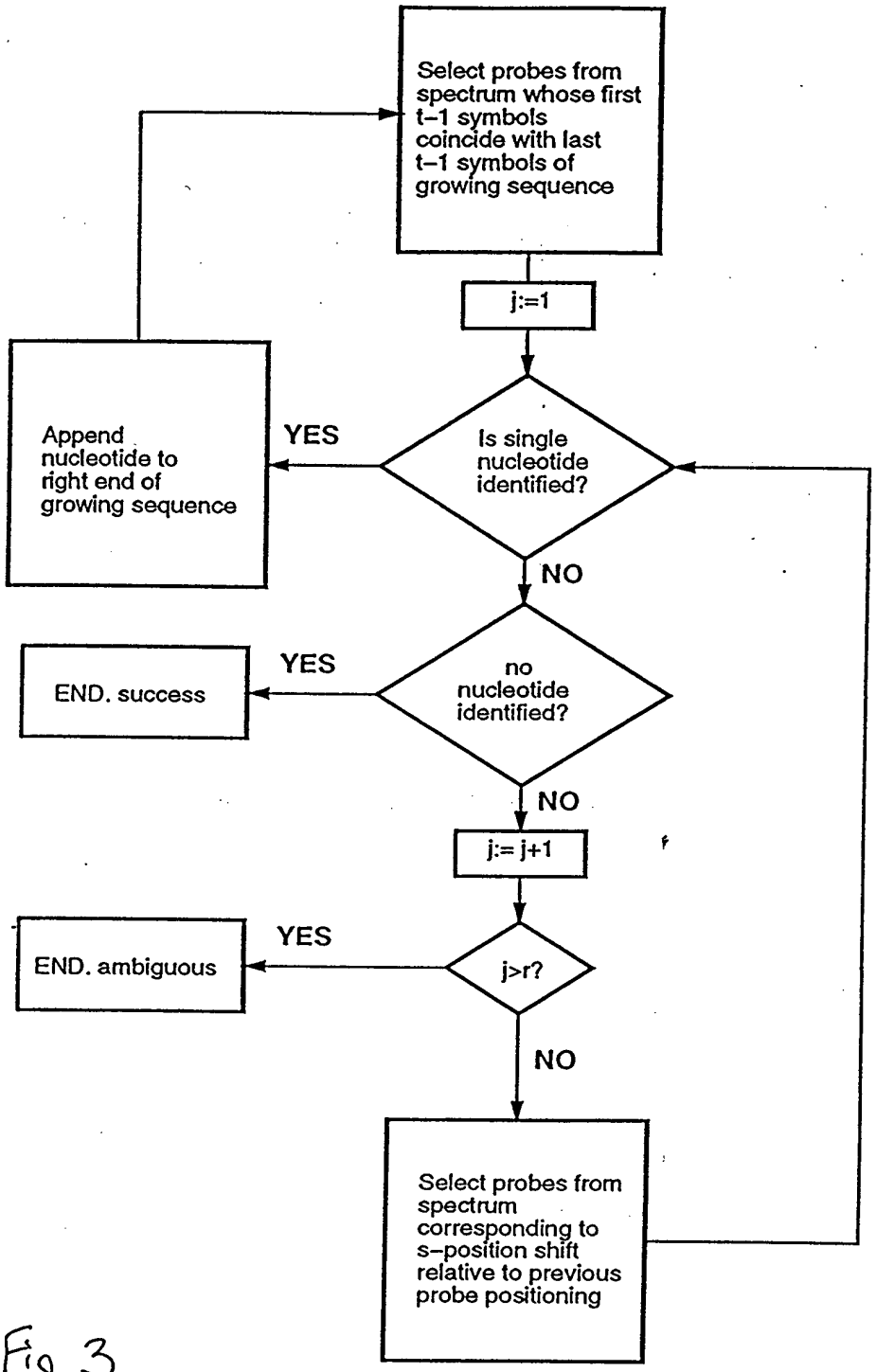
Select probes from spectrum whose first t−1 symbols coincide with last t−1 symbols of growing sequence
j:=1
Is single nucleotide identified?
YES
Append nucleotide to right end of growing sequence
NO
no nucleotide identified?
YES
END. success
NO
j:= j+1
j>r?
YES
END. ambiguous
NO
Select probes from spectrum corresponding to s−position shift relative to previous probe positioning

Fig. 3

Figure 4

A.

TAGACCGATA	CGUTUA	ATUGUT
	CGUTUG	ATUCUT

B.

TAGACCGATA

CGUTUA

CGUTUG

C.

TAGACCGATA

ATUGUT

ATUCUT

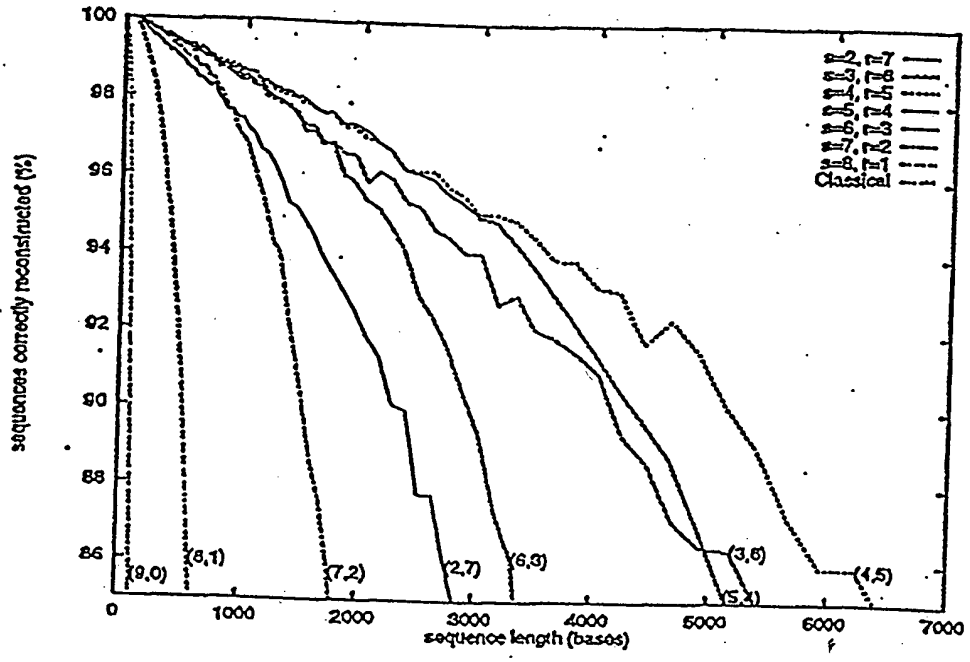
100
98
96
94
92
90
88
86
0
1000
2000
3000
4000
5000
6000
7000
sequences correctly reconstructed (%)
sequence length (bases)
Classical
(9,0)
(8,1)
(7,2)
(2,7)
(6,3)
(3,6)
(5,4)
(4,5)

FIG. 5

95 % success rate

(s,r)-pattern	(9,0)	(8,1)	(7,2)	(6,3)	(5,4)	(4,5)	(3,6)	(2,7)
random	101	669	2179	4325	6550	8782	8852	4272
archae	63	305	886	1440	1741	1741	1304	689
e. coli	72	415	1255	2245	3142	3300	2602	1529
haemo	59	321	886	1590	2120	2227	1843	1028

90 % success rate

(s,r)-pattern	(9,0)	(8,1)	(7,2)	(6,3)	(5,4)	(4,5)	(3,6)	(2,7)
random	139	899	2524	5009	7584	10169	10249	4947
archae	86	460	1318	2358	3300	3300	2477	1255
ecoli	97	536	1607	3016	4430	5389	4252	2384
haemo	86	437	1136	2137	2992	3300	3016	1607

FIG. 6

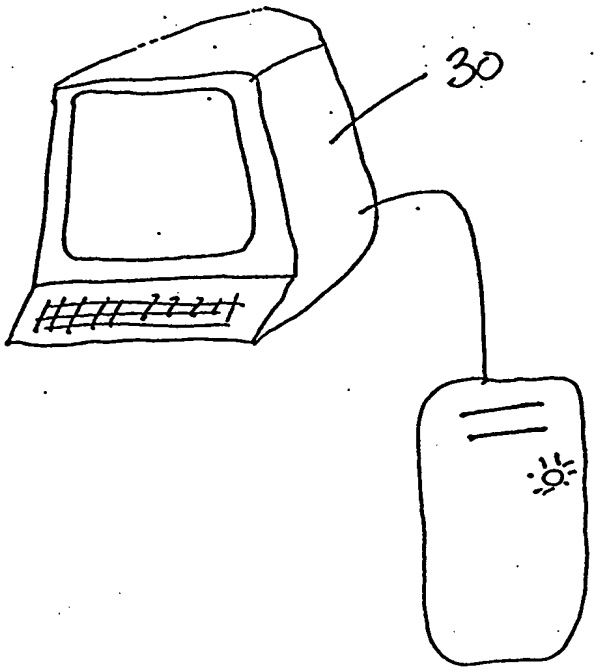

FIG. 7

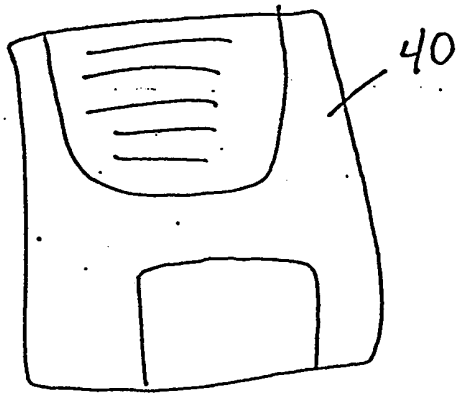

FIG. 8

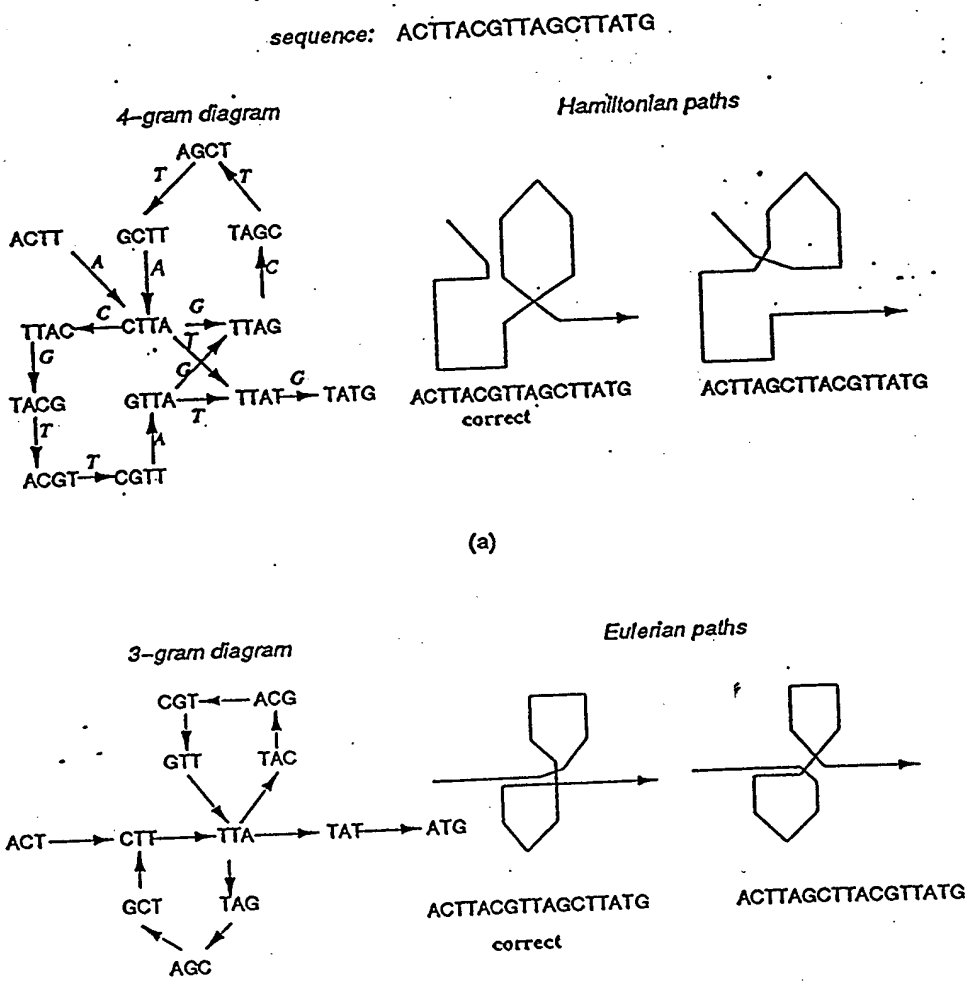
sequence: ACTTACGTTAGCTTATG
4-gram diagram
Hamiltonian paths
AGCT
ACTT
GCTT
TAGC
TTAC
CTTA
TTAG
TACG
GTTA
TTAT
TATG
ACGT
CGTT
ACTTACGTTAGCTTATG
correct
ACTTAGCTTACGTTATG
(a)
3-gram diagram
Eulerian paths
CGT
ACG
GTT
TAC
ACT
CTT
TTA
TAT
ATG
GCT
TAG
AGC
ACTTACGTTAGCTTATG
correct
ACTTAGCTTACGTTATG
(b)

Fig. 9

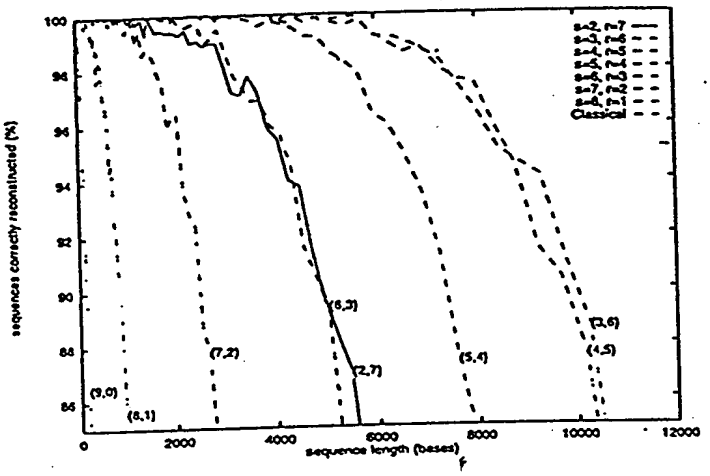
sequences correctly reconstructed (%)
100
98
96
94
92
90
88
86
0
2000
4000
6000
8000
10000
12000
sequence length (bases)
(9,0)
(8,1)
(7,2)
(6,3)
(5,4)
(4,5)
(3,6)
(2,7)

Fig. 10